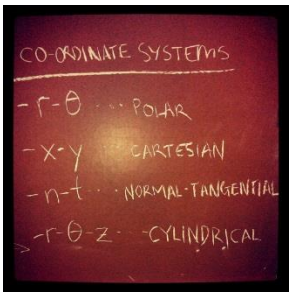
# Study Tips for Success in Engineering Mechanics




**Before Lecture:**

a) Skim: how is the chapter organized?
b) Read the summary, then preview the chapter
c) Look at the charts, diagrams and figures
d) Learn the terminology/vocabulary/strategies and approaches to solve problems
e) Develop learning objectives: What do you want to learn?

**Note**: If you are learning something you want, then what are you learning?

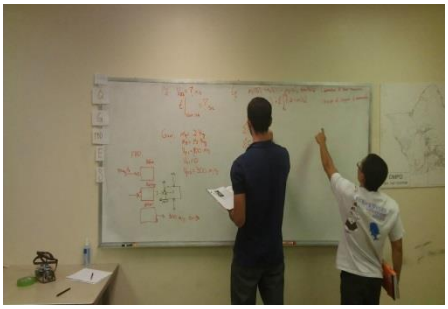
**During Lecture:**

a) Bring textbook/handouts to class
b) Identify topic of the lecture: concept/fact/tidbit
c) Identify key concepts discussed
d) Leave spaces for questions
e) Leave the margins open: so you can come back and create your exam questions

**Immediately After Lecture:**

a) Five minute recap: what happened today in lecture
b) Identify main topics: what did the instructor stress
c) What is necessary to now about each topic **and solving engineering problems**: questions, units of measurements, givens, free body diagrams, state your assumptions, fundamental equations, math involved to solve question(s)

**Note**: Redo all example problems without looking at the answers. Time yourself to mimic testing conditions (no more than 10 minutes/problem).



*Practice, practice, practice*

**Same Day:**

a) Read text and label information: focus on the bold words
b) Complete learning objectives: What did you learn?
c) Fill in questions in the margins that you left open
d) Organize and summarize: how will you learn and apply the material in the future?

**Note:** Do example problems from the book. Give yourself time restraints. Know the fundamental questions and exceptions to the rules.

*Drill problems with friends*

**Next Day:**

a) Review material from the previous day: What did I learn yesterday?
b) Read through areas that were confusing: What don't I understand?
c) Create exam questions? How would I test this concept?
d) Memorize key concepts. What should I know for the test? For the future (i.e., in upper division coursework, graduate school, and for employment as an engineer)?

**Note:** Do more example problems. Give yourself time restraints. Study with others. Give presentations on how to solve the problems.

**Same Week**:

a) Prepare review materials: Summarize the materials to make it your own (in your own words, in academic vernacular, in engineering jargon, suitable to explain to you grandmother)
    a. *Communication skills are essential in your success as engineer*.
b) Know and memorize the charts, diagrams, and how to draw free body diagrams: Why are images, charts, diagrams, free body diagrams so important?
c) Check notes: clear, consistent, and complete
d) Practice problems: Understand the appropriate equations needed to solve the problem which will build upon an accumulated knowledge

**Note:** Do more example problems. Know how to explain free diagrams. Be able to explain fundamental equations and appropriate times to use them. Give yourself time restraints.

**End of topic:**

a) Make sure you know your topic:
    a. Mechanics is everywhere but you must be able to first see it. In other words, break down the motions in step-wise pieces that can be explained using fundamental equations
b) A good rule of thumb to test your knowledge:
    a. Explain what you learn to someone in simplest terms possible without referring to notes or a textbook

**Exam:**

a. Exam questions are mostly problem based
b. Think like a test a maker.
c. What worked? What did not work?
    a. How did you study?
    b. How many problems did you solve from the chapter/section?
    c. Did you allow yourself adequate time to prepare before lecture?
    d. Did you make adequate preparation for review?
    e. Did you do problems/read immediately after class?
    f. Did you study effectively?
    g. How many times did you review the material?
    h. Did you stay up late cramming the night before?
    i. Did you do your homework? How long did it take you? Did you review your homework?
    j. Did you master the terminology, and know how to use it, appropriately?
    k. Did you master the math needed to solve the problems?
    l. Did you get together in study groups to review and drill each other on the material?
    m. Did you take advantage of recitation, study help and office hours?

**After exam:**

1. What would you have done differently?
2. What will you change?
3. What excuses did you make for putting off learning the material?
4. What got in your way of preparing?
5. What are you goals for the next test?

Adapted for CEE 271: Dynamics by J. L. Irvine from a handout by Profess Grant Harada's Zoology 141 and 142 courses in 2011, updated 2015

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